

CLAIMS

1. A storage system, comprising a control unit coupled to a plurality of host processors for receiving therefrom a plurality of input/output processing requests each containing a command designating an extent of the input/output processing request to thereby control data transfers between said host processors and a plurality of storage devices on the basis of the commands of said input/output processing requests, said control unit including memories for storing control information for said input/output processing requests on a request-by-request basis, said plurality of storage devices being coupled to said control unit, wherein logical devices are set up across said plurality of storage devices,

wherein upon reception of a newly issued input/output processing request, said control unit stores the extent of said newly issued input/output processing request in said memory for executing said newly issued input/output processing request provided that any other input/output processing request whose extent overlaps with that of said newly issued input/output processing request is not resident in said memory, whereas when other input/output processing request whose extent overlaps with that of said newly issued input/output processing request is stored in said memory, information indicating that said newly issued input/output processing request is forced to wait for

execution thereof is stored in said memory.

2. A storage system according to claim 1, wherein when the extents of a plurality of input/output processing requests for one of said logical volumes are covered by mutually different storage devices, respectively, operation of reading data from said storage devices are carried out in parallel in response to said plurality of input/output processing requests.

3. A storage system according to claim 1, wherein said control unit is provided with service equipment having input/output function for the control memory incorporated in said control unit, information indicating whether exclusive control is to be performed or not on the basis of the extent of said input/output processing request is stored in said control memory under the command of said service equipment or said host processor, and wherein upon issuance of a new input/output processing request, said control unit selects on the basis of said information either the exclusive control based on the extent of said new input/output processing request or the exclusive control based on logical volumes.

4. A storage system coupled to a plurality of host processors, comprising:

an external storage; and
a control unit for controlling transfer of information between said host processors and said

external storage,

wherein arrangement is made such that device busy state is prevented from occurrence even when a plurality of commands which do not overlap in respect to extents of input/output processing requests are received from said plurality of host processors for a same logical device.

5. A storage system according to claim 4,
wherein arrangement is made such that said device busy state is prevented from occurrence when said plurality of commands which exhibit no overlap in respect to the extents of the input/output processing requests are received for a same file rather than said same logical device.

6. A storage system according to claim 4,
wherein said host processor is imparted with no function for checking whether or not files stored in said storage device are being used.

7. A storage system according to claim 4,
wherein in said external storage, one logical device is setup over a plurality of physical devices.

8. A storage system according to claim 7,
wherein arrangement is made such that device busy state can occur when said physical device is being used.

9. A storage system coupled to a plurality of host processors, comprising:
an external storage; and

a control unit for controlling transfer of information between said host processors and said external storage,

wherein exclusive control for a plurality of input/output processing requests issued for a same logical device from said plurality of host processors is performed by making use of extent of the input/output processing request contained in commands issued by host processors.

10. A storage system according to claim 9,

wherein arrangement is made such that said exclusive control can be suppressed either by service equipment coupled to said control unit or by said host processors.

11. A control method in a storage system coupled to a plurality of host processors, said storage system having an external storage device and a control unit for controlling transfer of information between said host processors and said external storage device, said method comprising:

a first step of issuing, from a host processor, a first command including specification of a logical device and an extent of an input/output request; and

a second step of issuing, from a host processor, a second command including specification of a logical device and an extent of an input/output request, wherein even when said first and second steps

exist, a device busy state is prevented from occurrence though a same logical device is specified in both the commands unless said extents of said input/output requests of said first and second commands overlap on each other.

12. A control method according to claim 11, wherein even for a same file rather than said same logical device, said device busy state is prevented from occurrence.

13. A control method according to claim 11, wherein said host computer is imparted with no function for checking whether or not files stored in said storage device are being used.

14. A control method according to claim 11, wherein in said external storage device, said one logical device is setup over a plurality of physical devices.

15. A control method according to claim 14, further comprising a third step of issuing said device busy state when a physical device is being used.

16. A control method in a storage system coupled to a plurality of host processors, said storage system having an external storage device and a control unit for controlling transfer of information between said host processors and said external storage device, said method comprising:

a first step of issuing, from a host processor, a command for suppressing exclusive control;

a second step of issuing, from a host processor, a first command including specification of a logical device and an extent of an input/output request; and

a third step of issuing, from a host processor, a second command including specification of a logical device and an extent of an input/output request,

wherein even when said first, second and third steps exist, a device busy state occurs in spite of that said extents of said input/output requests of said first and second commands do not overlap on each other.

17. A control method in a storage system coupled to a plurality of host processors and a service equipment, said storage system having an external storage device and a control unit for controlling transfer of information between said host processors and said external storage device, said method comprising:

a first step of issuing, from a service equipment, a command for suppressing exclusive control;

a second step of issuing a first command including specification of a logical device and an extent of an input/output request; and

a third step of issuing a second command including specification of a logical device and an extent of an input/output request,

wherein even when said first, second and third steps exist, a device busy state occurs in spite of that said extents of said input/output requests of said first

and second commands do not overlap on each other.

18. A control method according to claim 17, wherein said second and third steps are issued by said host processors.

19. A recording medium storing a computer readable program executing the control method according to claim 11.

20. A recording medium storing a computer readable program executing the control method according to claim 16.

21. A recording medium storing a computer readable program executing the control method according to claim 17.

22. A computer readable program on a recording medium executing the control method according to claim 11.

23. A computer readable program on a recording medium executing the control method according to claim 16.

24. A computer readable program on a recording medium executing the control method according to claim 17.